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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,238	02/25/2002	Masanobu Hidehira	8039-1002	3861

466 7590 10/30/2003

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ARLINGTON, VA 22202

EXAMINER
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DI GRAZIO, JEANNE A

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 10/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/081,238

Applicant(s)

HIDEHIRA ET AL.

Examiner

Jeanne A. Di Grazio

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Priority***

Priority to Japanese Patent Application No. 2001-049492 (Feb. 23, 2001) is claimed.

### ***Response to Arguments***

Responsive to Amendment of August 1, 2003.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 4-8 rejected under 35 U.S.C. 102(b) as being anticipated by Shimada et al. (US 6,147,722).

Per claim 1: Shimada discloses a pair of substrates (Prior Art Figure 28, substrates 120 and 122), a liquid crystal sealed between said pair of substrates (Figure 28 LC 112), a plurality of gate signal lines and source signal lines crossing each other (Figures 16 A&B and 19), a switching element having one end of a current path connected to the corresponding data line and a control end connected to the corresponding scanning line (Figures 16 A&B and 19), a wiring connected to the other end of the current path of the switching element (Figures 16 A&B and Figure 19), an insulating layer being formed on said wiring and having a contact hole through which an end portion of said wiring is exposed (insulating film 136 of Figure 28), a pixel electrode being formed on said insulating layer and electrically connected to the end portion of said wiring through the contact hole (Figure 19, pixel 140); and an alignment film being formed on said pixel electrode and in contact with said liquid crystal (Figure 28, alignment film 150),

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wherein said contact hole is formed at a position overlapping a region where disclination occurs (Figure 16A and Figure 16B).

Per claim 4: The wiring is made of a light shielding material and said contact hole and at least a part of the region where disclination occurs are shielded by said wiring (Col. 7, Lines 61-63).

Per claim 5: The scanning lines and the data lines bounds a plurality of pixels each having said contact hole and said contact hole in the pixel is provided at a downstream in a rubbing direction with respect to the switching element of other pixel adjacent to the pixel (Col. 14, Lines 45-57).

Per claims 6-8: Said scanning line has a projecting portion overlapping said contact hole and/or said region where disclination occurs and shielding light, a black matrix overlapping data lines and with a wide portion overlapping a region in the pixel between said data line and the projecting portion, and an electrostatic capacitance (Col. 7, Lines 25-51).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 3, 10, and 11 rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. (US 6,147,722) in view of Zhang et al. (US 6,115,088).

Per claims 2, 3, 10, and 11: Shimada does not appear to explicitly specify that the insulating film is formed of a plurality of insulating films and the insulating films have openings

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individually which form the contact hole in a tapered shape as a whole; however, Zhang has a display device where a laminate film functions as a first interlayer insulating film and a contact hole is created through the first interlayer insulating film made of the laminate films (Col. 5, Lines 1-9). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Shimada in view of Zhang for manufacturing ease and for multi-layer connections (Col. 4, Lines 9-12 and Lines 46-47).

Claim 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. (US 6,147,722).

Per claim 9: The method of manufacturing the display device as claimed in claim 1 would have been obvious to one of ordinary skill in the art at the time the invention was made in view of the teachings of Shimada for:

“providing a liquid crystal display device with a high aperture ratio which can prevent light leakage caused by the generation of a reverse tilt domain between a gate signal line and a pixel electrode and/or between a source signal line and the pixel electrode; (2) providing a liquid crystal display device with a high aperture ratio which can prevent light leakage caused by the generation of a reverse tilt domain even if any of the gate line inversion driving method, the source line inversion driving method, and the dot inversion driving method are employed; and (3) providing a liquid crystal display device with a high aperture ratio which can prevent light leakage caused by the generation of a reverse tilt domain at and around a contact hole irrespective of the thickness of the interlayer insulating film.” (Col. 7, Line 67 and Col. 8, Lines 1-13).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (703)305-7009.

The examiner can normally be reached on M-F.

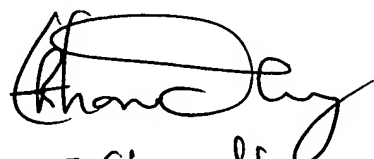
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (703) 305-3492. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Jeanne Andrea Di Grazio

Robert Kim, SPE

JDG

  
T. Chandley  
Primary Examiner